



# FOCUS

On Broadband  
Wireless Internet Access

*Independent, original, in-depth coverage of the trends and technology shaping the BWIA industry*

**Recipient of Part-15.Org's 2002 Wireless Advocate Of The Year Award**

**Steve Stroh, Editor**

**March 19, 2003**

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## **In This Issue:**

FCC Guts Unbundled Network Elements	
Provisions of 1996 Telecom Reform Act . . .	1
FOCUS News Items Of Note (new feature)	3
Events Of Interest To The Broadband	
Wireless Internet Access Industry . . . . .	6

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*FOCUS On Broadband Wireless Internet Access* is founded upon the following tenets:

1. Internet technology is becoming the foundation for nearly all communications, commerce, and entertainment services;
2. For Internet access to be truly usable, always-on Broadband Internet access is required;
3. By the end of the first decade of the 21<sup>st</sup> century, Internet access will be ubiquitous;
4. In the "last mile", wireline-based technologies and systems will generally prove to be insufficient or not cost-effective to provide ubiquitous, always-on, Broadband Internet to most homes and businesses;
5. In the near term, Broadband Wireless Internet Access in all its forms – Sub 11 GHz, Above 11 GHz, Free Space Optics, Ultra Wideband, Licensed, License-exempt has emerged as *the most likely technology* to provide cost-effective, ubiquitous, always-on Broadband Internet Access.

*FOCUS on Broadband Wireless Internet Access* is written in an informal, easy-to-read style, with an emphasis on clear explanations of why a particular company, product, or development in the Broadband Wireless Internet Access industry is significant. Each issue contains a number of *original*, in-depth articles and news stories. *FOCUS* is a just-in-time, short-lead-time publication, using Adobe Acrobat (.pdf) format, and email distribution. *FOCUS On Broadband Wireless Internet Access* is published by:

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## **FCC Guts Unbundled Network Elements Provisions of 1996 Telecom Reform Act**

Since the enactment of the 1996 Telecommunications Reform Act, the Incumbent Local Exchange Carriers (ILECs - now consisting of BellSouth, Qwest, SBC, and Verizon) have waged a relentless campaign on a number of fronts to be relieved of the burden of effective competition in last-mile home and business telecommunications services.

The ILEC's campaign would have been ruinously expensive for any other entity... but to the ILECs the campaign was merely a routine cost of doing business – their way. The campaign included lawsuits over nearly every issue of the 1996 TRA in numerous venues, seeking a "representative" victory "wherever it would stick", aggressive (even by Washington DC standards) lobbying of lawmakers including hefty campaign contributions, PR/Propaganda campaigns in key state battlegrounds, illegal and anti-competitive business tactics best described as dirty tricks, with the resulting fines merely shrugged off as a necessary cost of doing business. The ultimate cost of this campaign likely ran to tens of billions of dollars.

On February 20, the ILEC's long campaign came down to single vote at the FCC, where they won a partial victory.



# **FOCUS On Broadband Wireless Internet Access**

The portion of their campaign that they lost is their request for relief in providing “conventional” Plain Old Telephone Service (POTS) to competitors such as AT&T, Worldcom, Sprint, and Allegiance Telecom which then offer local phone service via the ILEC’s infrastructure based on “UNE-P” pricing. This portion of the decision, in a surprising dissent by three of five Commissioners from Chairman Michael Powell’s position, was widely viewed to protect consumer’s choice of local telephone companies. Such choice of local telephone service has only begun to achieve significant penetration (though still miniscule) in the last few years.

The sweeping victory for the ILECs, and the more significant part of the decision in the long term, was the decision to phase out, over a three-year period, the portions of Unbundled Network Elements Platforms (UNE-P) dealing with “line sharing”. Under the principles of UNE-P, independent, competitive ISPs that offer Digital Subscriber Line (DSL) services are able to offer such services in direct competition with the ILECs because the pricing of UNE-P is regulated by the FCC and state Public Utility Commissions (PUCs). Per the FCC decision, that “level playing field” will be gone, and the ILECs will be free to charge whatever they wish for UNE-P... or presumably to choose not to offer services or UNE-P to competitors at all.

Conventional wisdom would be that the FCC UNE-P “three year sunset” decision effectively signaled the slow death of the independent, competitive DSL ISPs.

But, as usual, conventional wisdom isn’t a good guide. With three years notice, independent, competitive DSL ISPs could have begun a measured transition to Broadband Wireless Internet Access. With their solid customer bases and the availability and cost-effectiveness of increasingly well-proven BWIA systems, they probably could have lined up sufficient investment to make the change.

Of course... that assumes that there are investors willing to invest in (current) independent, competitive DSL ISPs / (future) WISPs... oops.

What has likely doomed the independent, competitive DSL ISPs is their decision to fight the FCC ruling. A legal fight throws the outcome of the FCC’s UNE-P phase out decision into doubt. At this point, there’s no upside to the independent, competitive DSL ISP business. If the challenge wins, then any monies spent on a conversion to wireless will be “wasted”, rendering those companies who did invest in a conversion to wireless at a disadvantage (at least temporarily) for having made the investment when “they didn’t have to”, and those who didn’t make such investments being at a (perceived) advantage. The bottom line is that there will be ongoing uncertainty about investments in the independent, competitive DSL ISP business... and investors *hate* uncertainty.

The FOCUS perspective, therefore, is that investment in independent, competitive DSL ISPs will soon cease completely pending the outcome (likely years away) of the legal fight between the independent, competitive DSL ISPs and the FCC. There will not be substantial conversions from independent, competitive DSL ISPs to wireless.

The upside is that the independent, competitive DSL ISPs will be more vulnerable to “poaching” of customers by Broadband Wireless Internet Access ISPs more than ever, opening the market wide open to new generations of BWIA equipment and expansion of existing networks.

## **A Note on the Format of FOCUS:**

While *FOCUS* is delivered electronically (via email), in electronic (Adobe Acrobat .pdf) format, the *layout* of *FOCUS* is optimized for hardcopy- it is assumed that *FOCUS* will be printed out for reading. In essence, *FOCUS* is a print newsletter, delivered electronically, and as such, columns and other “print” layout techniques are used. My research to date has indicated that a “print” format for *FOCUS* would be most popular. If you have a strong preference for a “linear” layout for electronic-only reading, please let me know. If there is sufficient demand, *FOCUS* could be made available in “print reading” and “electronic reading” versions. Also, if your preference is for text-only (no .pdf), please let me know that also.



# ***FOCUS on Broadband Wireless Internet Access***

## ***FOCUS News Items Of Note***

News Items Of Note is a new feature of ***FOCUS On Broadband Wireless Internet Access***. In the last several issues of ***FOCUS***, it should be clear that 2003 will be the pivotal year for the Broadband Wireless Internet Access industry. News Items Of Note is intended to offer a more comprehensive view of all of the significant developments in the BWIA industry. That's not to say that every new product, every new service provider, etc. will be mentioned. The intent is to provide a "short look" at the *significant* developments of the BWIA industry in each issue of ***FOCUS***. Space doesn't permit a full catch-up of all significant news since January 2003; a number of articles from January through current will be featured in the next several issues of ***FOCUS***.

- **March 19, 2003 – News From Annual Wireless Telephony Trade Show Reflects Profound Shift In Interest to Potential of 802.11b / Wi-Fi.** The general perception of the news filtering out of Cellular Telephone & Internet Association's (CTIA) annual Wireless (2003) show is that license-exempt wireless systems will likely achieve parity in the number of customers for high-speed Internet access services... bad news an industry plunging headlong into a costly implementation of "3G" technology... especially when licensed and license-exempt "4G" (faster-than-"3G") systems are already appearing in trial and production deployments. (Derived from numerous news reports and press releases from CTIA Wireless 2003 - <http://news.google.com/news?hl=en&q=%22ctia+wireless+2003%22>)
- **March 17, 2003 – New Leaders Elected to Wireless Communication Association's (WCA) License-exempt Alliance (LEA) Subgroup.** Elected were Alvarion Chief Evangelist Patrick Leary; AMA\*TechTel Vice President

Douglas Campbell; Intel Corp. Director of Business Development for Broadband Wireless Access Stuart Goldstein; Motorola Canopy Director for Sales and Marketing Thomas Hulsebosch; Prairie iNet CEO Neil Mulholland; and UniiGo Communications President & CEO Dudley C. Freeman. These six join LEA Chairman Douglas Keeney, Chairman of US Wireless Online, a large Broadband Wireless Internet Access Service Provider. This new streamlined board is expected to be more effective in its advocacy mission to advance the cause of providing Broadband Internet Service primarily through the use of license-exempt spectrum. Of particular note is Intel's participation in both the LEA and the WCA as a whole. Previously Intel's involvement in wireless was limited to Wireless LAN systems such as the ill-fated HomeRF system, and now 802.11b / Wi-Fi. Intel's "nomination" statement was particularly enlightening for the future of the BWIA industry, considering that Intel has the ability through its technology, partnerships, and financial strength to "make things happen", such as the (now) near ubiquity of the Universal Serial Bus standard. Statement begins: *Intel accepted a position on the WCA Board as part of its effort to increase the availability and adoption of broadband Internet access worldwide. Intel is also an active member and supporter of the IEEE 802.16a standards group for Wireless Metropolitan Area Networks in the 2-11GHz licensed and unlicensed spectrum. To ensure the success of the 802.16a standard, Intel will remain active in WiMAX to ensure interoperability between 802.16a compliant systems. Availability and adoption of broadband Internet access*



# FOCUS On Broadband Wireless Internet Access

*is critical to driving demand for more powerful personal computers, and is therefore core to Intel corporate strategy. Intel has and will continue to make investments throughout the broadband wireless value chain in order to create an ecosystem to accelerate broadband deployment and the sale of Intel silicon.*  
[http://www.wcai.com/lea/le\\_news2003.htm#mar11](http://www.wcai.com/lea/le_news2003.htm#mar11)

- March 17, 2003 – **Companies Collaborate To Offer Wi-Fi HotZones At Truck Stops.** Columbia Advanced Wireless, IBM, and RockSteady Networks have announced plans to provide HotZone services at 1000 truck stops nationwide. An estimated 25% of truckers carry laptops and the HotZones would allow truckers to check for loads, answer email, check weather conditions, and other Internet tasks. Columbia Advanced Networks will install and operate the HotZones using IBM servers and RockSteady access and authentication software. Unlike coffee shop Wireless HotSpots, the value proposition for a truck stop Wireless HotZone is unambiguous – time is money for truckers, and being able to conduct business from their cab instead of waiting in line at an Internet kiosk is money well-spent.  
<http://tinyurl.com/7xwv>
- March 17, 2003 – **SkyWeb Alliance Melds Three Large California WISPs.** In one of the first announcements of its kind, NextWeb, SkyPipeline, and SkyRiver Communications have formed the SkyWeb alliance to offer a branded Broadband Wireless Internet Access across the service territories of all three companies. This announcement is one of the first of what is expected to be a

number of such branding and interoperability agreements.  
<http://www.skyweballiance.com/>

- March 17, 2003 – **LightPointe Introduces FlightStrata Product Line.** FlightStrata appears to be a refinement of LightPointe's successful Flight product line of FSO systems, incorporating beam steering, beam shaping, and automatic power control. Versions of FlightStrata be available at 52 Mbps and 155 Mbps.  
<http://www.lightpointe.com/index.cfm?fuseaction=news.NewsDetails&NewsID=52>
- March 13, 2003 – **FCC Opens Proceeding That Suggests The Possibility of License-exempt Operations in 2.5 – 2.7 GHz ITFS/MMDS Band.** This is really thinking outside the box... for the FCC. Sprint will undoubtedly mount a vigorous defense, as will Nucentrix and Clearwire Technologies, all holders of significant portions of ITFS/MMDS spectrum. Worldcom has already announced its desire to sell its ITFS/MMDS spectrum and small broadband wireless business. The FCC is absolutely right (and surprisingly courageous) in suggesting this possibility. There is ample available equipment, much of it adapted from equipment available in the 2.4 GHz band "right next door" and therefore quite cost effective and robust. There is 190 MHz of spectrum available in the ITFS/MMDS band – more than twice what is available in 2.4 GHz. This topic will be explored in depth in a future issue of **FOCUS**, including my formal comments to the FCC on this issue.  
[http://hraunfoss.fcc.gov/edocs\\_public/atchmatch/DOC-232107A1.pdf](http://hraunfoss.fcc.gov/edocs_public/atchmatch/DOC-232107A1.pdf)



## ***FOCUS on Broadband Wireless Internet Access***

- March 12, 2003 – **Intel Announces 802.11b / Wi-Fi Enabled Centrino Chipset.** Once upon a time, the mouse (port), video card, serial ports, parallel ports, disk controllers, Ethernet, USB, and modems were all optional in a PC... until Intel decided to include each of those features into successively new generations of chipsets, adding little or nothing to the cost of the computer, while insuring that every PC user would have access to those increasingly desirable functions at no additional cost. The latest wrinkle of Intel's aggressive application of Moore's Law is no different – adding the core functions of 802.11b Wireless Local Area Network into its latest generation of chipset. Intel's announcement all but insures that 802.11b / Wi-Fi will be a yet another standard feature of every laptop shipping within a few months. <http://www.intel.com/pressroom/archives/releases/20030312comp.htm>
- March 12, 2003 – **Ceragon Networks Introduces FibeAir 3128, Doubles Capacity Of A Single 28 MHz Microwave Channel To 311 Mbps.** The new product makes use of a cross-polarity interference canceller allowing double the usual capacity of a typical 28 MHz microwave channel in the licensed 6 – 38 GHz bands. [http://www.ceragon.com/news\\_01\\_65.htm](http://www.ceragon.com/news_01_65.htm)
- March 11, 2003 – **McDonalds Announces Trial Of Wireless HotSpots In Manhattan Restaurants.** In a move that's been variously predicted since the beginning of the Wireless HotSpot trend, McDonalds has begun to equip its restaurants with 802.11b / Wi-Fi HotSpots. The trial phase consists of ten restaurants in Manhattan and is expected to expand to "several hundred restaurants in three major US markets by year's end". I think that the announcement of Wireless HotSpots is

the proverbial "Camel's Nose Under The Tent" gambit. Imagine the effect of adding a roof-mounted triple-sectored 802.11b on the roof of each standalone McDonalds to provide Internet service to nearby stationary, permanent customers. The primary expense in deploying a Wireless HotSpot is the ongoing cost of bandwidth, and in this scenario, the "permanent" customers could easily pay enough for the service to offset much if not all of the bandwidth cost, allowing McDonalds to provide HotSpot service to itinerant customers at little or no cost, providing even more of a draw. <http://tinyurl.com/7xyv>

- March 11, 2003 – **Motorola Offers New Canopy 20 Mbps P-P System.** This newest version of the well-received Canopy system has achieved ranges of 35 miles and 13 Mbps throughput in real-world deployments. The 20 Mbps version has the same form factor as the previous version. [http://biz.yahoo.com/prnews/030311/cg\\_tu064\\_1.html](http://biz.yahoo.com/prnews/030311/cg_tu064_1.html)
- March 11, 2003 – **Alvarion Unveils BreezeAccess Go – New Line of Wireless HotSpot Products.** In one of the most modestly named product offerings ever – "Go", Alvarion begins its attack on a segment of the BWIA market from which it had previously been conspicuously absent. Go offers a very well-thought-out product for the Wireless HotSpot segment industry, including authentication by SIM card used in GSM phones and built-in support for aggregation services such as GRIC, Boingo Wireless, and iPass. Most compelling is that Go isn't a standalone HotSpot product, but rather part of a system that includes "last few miles" backhaul via wireless. The cost-effectiveness of wireless backhaul is one of the key factors that will make



# FOCUS On Broadband Wireless Internet Access

Wireless HotSpots tenable in the long run. Now if Alvarion will just get a companion HotZone product out the door (purely conjecture on my part) for coverage of areas such as truckstops, campgrounds, concert venues, etc. [http://www.alvarion.com/RunTime/Products\\_2020.asp?tNodeParam=33](http://www.alvarion.com/RunTime/Products_2020.asp?tNodeParam=33)

- **March 10, 2003 – Intel Announces Year-to-date Investments In Four Companies Involved In Wi-Fi.** In short, Intel is voting with its considerable “wallet” on the success of 802.11b/a/g / Wi-Fi. The four investments are rovingIP.net, Vivato, Broadreach Networks Limited, and Pronto Networks. The funds invested are part of a \$150M portfolio that Intel intends to invest wholly in early-stage companies involved in wireless. <http://www.intel.com/capital/portfolio/funds/icf.htm>
- **March 4, 2003 – Wi-LAN Launches Next Generation of Robust, Mature OFDM BWIA System.** Wi-LAN, one of the longest-established and most-experienced providers of BWIA equipment, announced the AWE-120-58 Ultima3 for the license-exempt 5.8 GHz band. Vendors that are shipping 5.8 GHz systems currently and in the near future are on their first generation of equipment; the AWE-120-58 is Wi-LAN’s second generation of OFDM-based systems. Arguably, Wi-LAN has the most experience with OFDM of any company in the BWIA industry. The AWE-120-58 is available in three distinct versions reflecting different applications – Point-To-Multipoint (MP), Rapid Deployment (RD), and Extended Range (ER). <http://www.wi-lan.com/solutions/main15.html>
- **March 1-2, 2003 – Groundbreaking Conference – Spectrum Policy:**

**Property Or Commons Is Held At Stanford Law School.** This is one conference that, from all accounts, did it right to discuss the increasing disconnect in policy between the realities of wireless technologies evolving at the pace of Moore’s Law, and the advocates of “Spectrum As Property” who feel that rights to use portions of electromagnetic spectrum are a tangible asset. It was one of the most intensively “blogged” conferences to date, resulting in excellent coverage of the event from many different viewpoints.

<http://cyberlaw.stanford.edu/spectrum>



## Events Of Interest To The Broadband Wireless Internet Access Industry

Please let me know of events that will be of interest to those in the Broadband Wireless Internet Access industry, and they will be featured as space permits. If I plan to attend a particular Event, it is noted.

- **March 23, 2003 – Chicago (Oak Brook) IL – Wireless ISP Conference – WISPCON III** (Numerous pre-show activities)  
[www.wispcon.info/US/WISPCONIII/WISPCON-III.htm](http://www.wispcon.info/US/WISPCONIII/WISPCON-III.htm)  
*I plan to attend and speak at this event.*
- **March 24-26, 2003 – Chicago (Oak Brook) IL – Wireless ISP Conference – WISPCON III**  
[www.wispcon.info/US/WISPCONIII/WISPCON-III.htm](http://www.wispcon.info/US/WISPCONIII/WISPCON-III.htm)  
*I plan to attend this event.*
- **April 9-10, 2003 – San Jose, CA – Broadband Wireless World 2003**  
[www.scievents.com/bwwf03](http://www.scievents.com/bwwf03)



## **FOCUS on Broadband Wireless Internet Access**

- April 9-11, 2003 – Singapore – Software Defined Radio (SDR) Forum General Meeting  
[www.sdrforum.org/MTGS/next\\_meeting](http://www.sdrforum.org/MTGS/next_meeting)
- April 14, 2003 – Tokyo, Japan – Software Defined Radio (SDR) Forum Symposium on Download Security  
[www.sdrforum.org/MTGS/next\\_meeting](http://www.sdrforum.org/MTGS/next_meeting)
- April 15-16, 2003 – Shanghai, China – Wireless China 2003  
<http://infoexevents.com/wireless/>
- April 21-23, 2003 – Frankfurt, Germany – WISPCON-EURO  
[www.wispcon.info](http://www.wispcon.info)  
*I will attend and speak at this event*
- April 27 – May 2, 2003 – Las Vegas, NV – NETWORLD + INTEROP Las Vegas  
[www.interop.com](http://www.interop.com)
- May 12-15, 2003 – Singapore – IEEE 802.16 Working Group on Broadband Wireless Access Standards Session 25 (held in conjunction with the other IEEE 802 Wireless Working Groups meetings)  
[grouper.ieee.org/groups/802/16/meetings/mtg25/index.html](http://grouper.ieee.org/groups/802/16/meetings/mtg25/index.html)
- June/July, 2003 – Sydney, Australia or Auckland, New Zealand – WISPCON Pacific  
[www.wispcon.info](http://www.wispcon.info)
- June 1-5, 2003 – Atlanta, GA – SUPERCOMM 2003  
[www.supercomm2003.com](http://www.supercomm2003.com)
- June 17-19, 2003 – Toronto, ON – Software Defined Radio (SDR) Forum General Meeting  
[www.sdrforum.org/MTGS/next\\_meeting](http://www.sdrforum.org/MTGS/next_meeting)
- June 24-25, 2003 – Vienna, Austria – Broadband Wireless Europe 2003  
[www.scievents.com/bwe03](http://www.scievents.com/bwe03)
- June 25-27, 2003 – Boston, MA – 802.11 Planet Conference & Expo Spring 2003  
<http://www.jupiterevents.com/80211/spring03/index.html>
- July 21-24, 2003 – San Francisco, CA – IEEE 802.16 Working Group on Broadband Wireless Access Standards Session 26 (held in conjunction with IEEE 802 Plenary Session)  
[ieee802.org/meeting/future\\_meetings.html](http://ieee802.org/meeting/future_meetings.html)
- August 10-13, 2003 – Boston, MA – IEEE Radio and Wireless Conference (RAWCON)  
[www.rawcon.org](http://www.rawcon.org)
- September, 2003 – Hong Kong – Broadband Wireless Asia 2003  
[www.scievents.com/bwasia](http://www.scievents.com/bwasia)
- September, 2003 – Washington, DC – WISP.X Wireless ISP Conference & Expo  
[www.scievents.com/wispx](http://www.scievents.com/wispx)
- September 8-11 or September 15-18, 2003 – Site To Be Determined – IEEE Working Group on Broadband Wireless Access Standards Session 27 (held in conjunction with IEEE 802 Plenary Session)  
[grouper.ieee.org/groups/802/16/calendar.html](http://grouper.ieee.org/groups/802/16/calendar.html)
- September 16-18, 2003 – Finland – Software Defined Radio (SDR) Forum General Meeting  
[www.sdrforum.org/MTGS/next\\_meeting](http://www.sdrforum.org/MTGS/next_meeting)
- September 18-19, 2003 – Sydney, Australia – 802.11 Planet Conference & Expo Australia 2003  
[www.jupiterevents.com/80211/sydney03](http://www.jupiterevents.com/80211/sydney03)
- September 24-25, 2003 – Hamburg, Germany – 8th International OFDM Workshop  
[ofdm.tu-harburg.de](http://ofdm.tu-harburg.de)
- September 29-30, 2003 – Munich, Germany – 802.11 Planet Conference & Expo Europe 2003  
[www.jupiterevents.com/80211/munich03](http://www.jupiterevents.com/80211/munich03)



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- November 9-14, 2003 – Albuquerque, NM – IEEE Working Group on Broadband Wireless Access Standards Session 28 (held in conjunction with IEEE 802 Plenary Session)  
[ieee802.org/meeting/future\\_meetings.html](http://ieee802.org/meeting/future_meetings.html)
- November 25-26, 2003 – Cambridge, UK – Wireless Broadband Forum  
[www.broadband-wireless.org](http://www.broadband-wireless.org)
- December 9-11, 2003 – Santa Clara, CA – 802.11 Planet Conference & Expo Fall 2003  
[www.jupiterevents.com/80211/fall03](http://www.jupiterevents.com/80211/fall03)
- January 12-15, 2004 – Vancouver, BC – IEEE 802.16 Working Group on Broadband Wireless Access Standards Session 29 (held in conjunction with the other IEEE 802 Wireless Working Groups meetings)  
[grouper.ieee.org/groups/802/16/calendar.html](http://grouper.ieee.org/groups/802/16/calendar.html)

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***[www.strohpublish.com/focus](http://www.strohpublish.com/focus)***

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- A-Clue.com  
[www.a-clue.com](http://www.a-clue.com)
- Broadband Wireless Online  
[www.tinyurl.com/498n](http://www.tinyurl.com/498n)
- Broadband Wireless Exchange Magazine  
[www.bbwexchange.com](http://www.bbwexchange.com)
- Cook Report On Internet  
(exchange of newsletters)  
[www.cookreport.com](http://www.cookreport.com)
- Dewayne-Net Technology List  
[www.warpspeed.com](http://www.warpspeed.com)
- Interesting-People Mailing List  
[www.interesting-people.org](http://www.interesting-people.org)
- Isen.com / The SMART List  
[www.isen.com](http://www.isen.com)
- Open Spectrum  
[www.tinyurl.com/45d5](http://www.tinyurl.com/45d5)
- Part-15.Org / WISPers newsletter  
[www.part-15.org](http://www.part-15.org)
- Reiter's Wireless Data Web Log  
[reiter.weblogger.com](http://reiter.weblogger.com)
- Wi-Fi Networking News  
[wi-fi.weblogger.com](http://wi-fi.weblogger.com)
- Wireless Communications Association International (WCA) – WCA Weekly Bulletin (members only)  
[www.wcai.com](http://www.wcai.com)
- Wireless Nets Newsletter  
[www.wireless-nets.com](http://www.wireless-nets.com)
- Wireless Week Magazine  
[www.wireless-week.com](http://www.wireless-week.com)



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